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ABSTRACT

This module, one in a series of competency-based administrator instructional packages, focuses on a specific competency that vocational education administrators need to be successful in the area of program improvement. The purpose of the module is to help administrators to identify sources of information needed to make program improvement decisions and to improve skills in using these information resources to solve problems and make decisions. An introduction provides terminal and enabling objectives, a list of resources needed, and a glossary of selected terms. The main portion of the module includes three sequential learning experiences. Overviews, which precede each learning experience, contain the objective for each experience and a brief description of what the learning experience involves. Each learning experience consists of a number of activities that may include information sheets, case studies, samples, checklists, and self-checks. Optional activities are provided. The final learning experience also provides an assessment form for administrator performance evaluation by a resource person. (YLB)

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ED226253

# Use Information Resources To Help Improve Vocational Education Programs

**MODULE**
**LT-I-1**

Module LT-I-1 of Category I—
Program Improvement

**COMPETENCY-BASED VOCATIONAL EDUCATION ADMINISTRATOR MODULE SERIES**

Consortium for the Development of
Professional Materials for Vocational Education

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**The National Center for Research in Vocational Education**
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# FOREWORD

The need for competent administrators of vocational education has long been recognized. The rapid expansion of vocational education programs and increased student enrollments have resulted in a need for increasing numbers of vocational administrators at both the secondary and postsecondary levels. Preservice and inservice administrators need to be well prepared for the complex and unique skills required to successfully direct vocational programs.

The effective training of local administrators has been hampered by the limited knowledge of the competencies needed by local administrators and by the limited availability of competency-based materials specifically designed for the preparation of vocational administrators. In response to this pressing need, the Occupational and Adult Education Branch of the U.S. Office of Education, under provisions of part C--Research of the Vocational Education Amendments of 1968, funded the National Center for a scope of work entitled "Development of Competency-Based Instructional Materials for Local Administrators of Vocational Education" during the period 1975-77. That project had two major objectives:

1. To conduct research to identify and nationally verify the competencies considered important to local administrators of vocational education.
2. To develop and field test a series of prototypic competency-based instructional packages and a user's guide. One hundred sixty-six (166) high priority competencies were identified and six prototypic modules and a user's guide were developed, field tested, and revised.

Although six modules had been developed, many more were needed to have competency-based materials that would address all the important competencies that had been identified and verified. To meet this need, several states joined with the National Center for Research in Vocational Education in September 1978 to form the Consortium for the Development of Professional Materials for Vocational Education, which has supported the development of additional modules and a guide to vocational education. Those states were Illinois, Ohio, North Carolina, New York, and Pennsylvania. The first five states were joined by Florida and Texas later in the first year.

Additional skills related to the administrator's role in program improvement were identified, and two modules, of which this is one, were developed to deliver on those skills. The development of this module was supported in part by the Consortium and in part by the Office of Vocational and Adult Education, U.S. Department of Education as part of the 1980-81 National Center for Research in Vocational Education contract.

Several persons contributed to the successful development and field testing of this module on using information resources to help improve vocational education programs. Carol P. Kowle, Research Specialist, assumed the major responsibility for reviewing the literature and for preparing the actual

manuscript. Recognition also goes to Lois G. Harrington, Program Associate, who helped conceptualize the module.

Acknowledgement is given to the official reviewers who provided critiques of the module and suggestions for its improvement: Linda Coffey, District Director of Occupational Education, Dallas County Community College District, Dallas, Texas; and Robert E. Klabenes, Campus Director, Southeast Technical Community College, Milford, Nebraska.

Credit goes to Michael Wonacott, Program Associate, and Lois G. Harrington, Program Associate, who helped to refine the module for publication after field testing; and to Robert E. Norton, Consortium Program Director, for providing program leadership and content reviews. Thanks go to Ferman B. Moody, Associate Director for Personnel Development, for his administrative assistance.

Appreciation is also extended to Calvin Cotrell, James Haire, George Kosbab, Helen Lipscomb, Aaron J. Miller, Dominic Mohamed, Robert Mullen, James Parker, Dale Post, Wayne Ramp, and Kenneth Swatt for their service as state representatives, state department contacts, and field-test coordinators; and to the other teacher educators and local administrators of vocational education who used the modules and provided valuable feedback and suggestions for their improvement. Last, but certainly not least, thanks and credit are due Deborah Linehan, Consortium Program Secretary, for her patience and expert skill in processing the many words necessary to make this module a quality document.

Robert E. Taylor
Executive Director
The National Center for Research
in Vocational Education

# INTRODUCTION

The role of the vocational/technical administrator becomes more complex and specialized each year. Administrators must make many decisions concerning vocational programming that involve, in many cases, complicated and difficult choices.

Many of the situations faced by administrators involve choosing from among several alternative courses of action. The ability to locate and choose the best alternative is the sign of the successful decision maker. Decision-making skills are not merely intuitive--they can be learned and developed through repeated use. The application of problem-solving and decision-making steps can improve daily administrative decisions.

Understanding the circumstances and conditions surrounding a decision is vital to rational choice. The identification and choice of alternatives should always be based on factual information. Useful information for decision making in education includes not only the details of the immediate situation--the "data" gathered on the case--but also the findings of researchers, the products of curriculum developers, and the opinions of experts. A range of information resources is available to educational decision makers; one need only locate these sources in order to be well informed.

In this module, problem-solving and information-seeking techniques are presented in conjunction with a description of some major information resources in education. The resources are explained in such a way as to take the mystery out of systems such as the Educational Resources Information Center (ERIC).

This module is designed to help you, as a busy administrator, (1) to identify places to turn when information is needed in order to make program improvement decisions and (2) to improve your skill in using these information resources to solve problems and make decisions. In reading this module, you will note that many of the information resources designed for vocational educators are located at the National Center for Research in Vocational Education (hereinafter called the National Center). The fact that so many resources are available in one location should make information retrieval easier for you. At the same time, you should keep in mind that the National Center is your center; the information resources described here are available to all vocational educators.

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**SOME INFORMATION SOURCES:**
**DO YOU KNOW ABOUT THEM AND HOW TO USE THEM?**

## Module Structure and Use

This module contains an introduction and three sequential learning experiences. Overviews, which precede each learning experience, contain the objective for each experience and a brief description of what the learning experience involves.

### Objectives

Terminal Objective: While working in an actual administrative situation, use information resources to help improve vocational education programs. Your performance will be assessed by your resource person, using the "Administrator Performance Assessment Form," pp. 61-63. (Learning Experience III)

Enabling Objectives:

1. After completing the required reading, apply problem-solving and information-seeking techniques to an educational problem described in a given case situation. (Learning Experience I)
2. After completing the required reading, identify resources appropriate for the information need described in a given case situation and critique the information-seeking performance of a decision maker in a given case study. (Learning Experience II)

### Resources

A list of the outside resources that supplement those contained within the module follows. Check with your resource person (1) to determine the availability and the location of these resources, (2) to locate additional references specific to your situation, and (3) to get assistance in setting up activities with peers or observations of skilled administrators.

Learning Experience I

Optional

- REFERENCE: Carkhuff, Robert R. The Art of Problem-Solving. Amherst, MA: Human Resource Development Press, 1973.
- REFERENCE: Wheeler, Daniel D. and Janis, Irving L. A Practical Guide for Making Decisions. New York, NY: The Free Press, 1980.

Learning Experience II

No outside resources

Learning Experience III

Required

- AN ACTUAL ADMINISTRATIVE SITUATION in which, as part of your duties, you can use information resources to help improve vocational education programs.
- A RESOURCE PERSON to assess your competency in using information resources to help improve vocational education programs.

## Selected Terms

Administrator--refers to a member of the secondary or postsecondary administrative team. This generic term, except where otherwise specified, refers to the community college president, vice-president, dean, or director; or to the secondary school principal, director, or superintendent.

Board--refers to the secondary or postsecondary educational governing body. Except where otherwise specified, the term "board" is used to refer to a board of education and/or a board of trustees.

Institution--refers to a secondary or postsecondary educational agency. Except where otherwise specified, this generic term is used to refer synonymously to secondary schools, secondary vocational schools, area vocational schools, community colleges, postsecondary vocational and technical schools, and trade schools.

Resource Person--refers to the professional educator who is directly responsible for guiding and helping you plan and carry out your professional development program.

Teacher/Instructor--these terms are used interchangeably to refer to the person who is teaching or instructing students in a secondary or postsecondary educational institution.

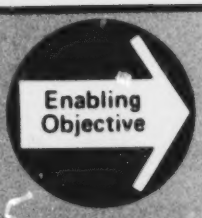
## User's Guide

For information that is common to all modules, such as procedures for module use, organization of modules, definitions of terms, you should refer to the following supporting document:

Guide to Using Competency-Based Vocational Education Administrator Materials. Columbus, Oh: The Center for Vocational Education, The Ohio State University, 1977.

# Learning Experience I

## OVERVIEW




After completing the required reading, apply problem-solving and information-seeking techniques to an educational problem described in a given case situation.

You will be reading the information sheet, "Use Problem-Solving and Information-Seeking Techniques to Help Improve Vocational Education Programs," pp. 7-12.

You may wish to read one or both of the following supplementary resources on problem solving and information-seeking: Carkhuff, The Art of Problem-Solving; and/or Wheeler and Janis, A Practical Guide For Making Decisions.

You will be reading the "Case Situation," pp. 13-16, and applying problem-solving and information-seeking techniques to the educational problem described.

You will be evaluating your competency in applying problem-solving and information-seeking techniques to an educational problem by comparing your responses to the "Case Situation" with the "Model Responses," pp. 17-22.

# NOTES

Solving problems and making decisions are part of the daily fare of the vocational administrator. If sound decisions are to be made, they must be reached using rational steps and the best available information. For information explaining the purposes of and steps in problem solving and information seeking, read the following information sheet.

## USE PROBLEM-SOLVING AND INFORMATION-SEEKING TECHNIQUES TO HELP IMPROVE VOCATIONAL EDUCATION PROGRAMS

Vocational administrators must make difficult decisions every day. Budgeting, staffing, program development, facility planning, and affirmative action policies, for example, can create complex problem situations that demand well-planned solutions. In recent years, more and more attention has been directed to the field of management science, which attempts to make the role of the manager or administrator less complicated and more rational. One important focus of management science has been on the techniques that can be used in the problem-solving process.

The use of problem-solving techniques is not new. In fact, educators have been teaching students how to solve problems for generations. Yet, when faced with real-life problems, vocational administrators may forget (or feel they don't have enough time) to analyze problems or to make sure they have enough information to choose the best possible course of action.

At the same time, you as a decision maker cannot expect to choose the perfect course of action at all times. There will be times when you do not know all the aspects of a problem. No situation is static; the circumstances surrounding a decision can sometimes change overnight. Still, a step-by-step approach to problems, with consideration of alternative solutions, and use of the best available information can improve the overall quality of decisions.

Finding and using the best available information on a problem or topic is crucial to successful problem solving and decision making. You have access to a vast array of information resources that can be used in the decision process. Making use of this information will contribute greatly to your ability to solve problems rationally. The flexible, rational, and wise decision maker can be described in the following terms:

- Skilled in problem-solving techniques
- Sensitive to personal needs
- Able to express a need or problem in concrete terms
- Open to new facts and ideas
- Capable of adapting solutions to actual situations
- Willing and able to seek and use information in making decisions designed to solve problems

Several approaches have been identified for use in solving problems. Information seeking and information use, as indicated, are crucial. A review of the steps involved in problem solving can help clarify the process and reveal the stages at which information seeking can improve the outcomes.

## Problem Solving

Rational problem solving follows a series of logical steps. In general, these steps involve identifying and defining the problem, gathering information, and locating and applying a solution. Here are some simple steps to follow in solving problems:

1. Identify the need.
2. Diagnose and state the problem.
3. Search for and acquire information on the problem.
4. Apply decision-making guidelines.

The amount of time spent in each of these stages depends on the magnitude of the problem and the time available to solve it. The following discussion outlines each step.

Step 1. The first step in problem solving is sensing a need, a problem, or a difficulty to be overcome. The administrator or decision maker may sense a need at only a general level. For example, you may recognize a problem concerning increasing enrollments without yet having examined the issue further. This is the awareness stage; the problem has recently surfaced.

Step 2. The second step is diagnosing and stating the problem. The problem statement should describe the difficulties to be overcome and include such specific diagnostic information as (1) who or what is affected by the problem, (2) what conditions are causing the problem, and (3) what goal is to be reached. When these three components have been stated in a clear and concise manner, the problem is no longer "increasing enrollments," but is defined in concrete terms, as in the following statement:

> Increasing numbers of adult students enrolling in our institution to upgrade their skills will cause overcrowding in our technical programs within two years. Our institution needs to coordinate facilities, staff, programs, and schedules to accommodate the influx of adult students.

The problem might be stated more simply as follows:

> Our institution needs to expand program offerings for adult students.

The problem statement is the most important part of the solution process. If the problem is stated incorrectly, if the "real" problem is something else

entirely, your information search will break down. Endless hours can be wasted looking for the wrong kinds of information. For example, consider what would happen if you had stated the goal as follows: "Our institution needs to rent space to accommodate the influx of adult students." Space may be only one part of the problem; in fact, it may not be the problem at all. Properly diagnosing and stating the problem in clear terms can prevent the selection of "Band-Aid" solutions such as "renting space" when the real problem is much broader.

Step 3. The third step is searching for and acquiring information on the problem. To save valuable time, you should know what types of information can be useful and where to find them. Faced with the enrollment problem, you may need (1) data on present and projected enrollments, especially of older adult students; (2) information on technical program areas experiencing crowding; (3) facts on staffing patterns and desirable student-staff ratios; (4) scheduling options; (5) information on the capacity of present facilities; and (6) projections of curriculum and equipment needs or other details pertinent to adult vocational program development.

Often, your information needs can be met wholly or partially by immediate sources of information. Sometimes a phone call to the appropriate person can answer important questions. On the other hand, seeking expert guidance from outside sources can be vital in certain problem situations. While many decision makers complete their fact finding using information available within the immediate environment, they sometimes neglect to take the extra steps involved in consulting research and expert opinion. Yet, information resources in education are often readily accessible to the vocational administrator in the field.

Step 4. The fourth step is applying decision-making guidelines. The tentative solutions are derived from consideration of the immediate data and solutions offered by research studies, journal articles, opinion, or other sources. It is preferable to be able to choose from among several alternatives. In all cases, solutions depend on the circumstances of the situation, the constraints or limitations, and the desired outcome.

At times, there will be only one "right" answer, and action can be taken immediately. In the case of the influx of adult students, a comprehensive multiyear master plan for maximum use of existing facilities, staff, and programs, may be the best--and only--solution. On the other hand, time constraints may hurry the decision process, forcing a choice of an alternative whether or not it is the optimal one. As one writer commented, applying a solution means putting it to the acid test. When there are attractive alternatives and the time to choose among them, however, you should consider the following seven decision-making guidelines:

1. Establish the objectives of the decision--The objectives describe the outcomes to be accomplished and the job to be done. You can establish your objectives by breaking down your goals into action statements.

2. Classify the objectives according to importance--Once objectives have been developed, they need to be weighed in terms of their importance. You need to distinguish between necessary and optional concerns. A "must" is a requirement that cannot be compromised; a "want" is desirable but subject to bargaining or compromise. Rank ordering can be used to determine the relative importance of "musts" and "wants" in making the final decision. It is a useful step here, as it encourages value clarification.

3. Develop alternative actions--The development and consideration of several alternatives are more likely to produce a final match between objectives and actions than a "one-shot" solution. Some choices may be obvious. However, the more possibilities you consider, the less likely it is that you will overlook the most desirable alternative. The final list of alternatives should be limited to authentic possibilities, however. In some cases the familiar and tested solution may be less effective than a new approach. In other cases, flawed alternatives can be reworked and improved.

4. Evaluate alternatives against the established objectives--Each alternative must be judged according to whether it satisfies "musts" while incorporating more "wants" than the other alternatives. You can make an estimate of utility in terms of the relative benefits of one alternative over another.

5. Choose the alternative best able to achieve all the objectives--The best alternative theoretically incorporates all "musts" and the greatest number of "wants," with the fewest disadvantages.

6. Explore the tentative decision for possible adverse consequences--To the extent possible, decisions should be viewed in light of potential negative results. The seriousness and probability of such results are important concerns. If the threats are too great, another decision may be required.

7. Control the effects of the final decision by taking other actions to prevent adverse consequences from becoming problems. Make sure the actions chosen are carried out--Clear the way for the course of action you have chosen. Follow through once the decision is made.

Sample 1 offers some further suggestions to consider in solving difficult problems.

## Information Seeking

Information seeking is a continuing part of program improvement and the problem-solving process. For example, information can be used to diagnose the problem, especially if a false start necessitates a second look at the issues. Alternative solutions can and should derive from the information gathered on the problem. In making decisions, your objectives should be based on information about educational needs. The relative effectiveness of decision alternatives should be evaluated in terms of available information. Even potentially adverse consequences can be identified through information retrieval.

**SAMPLE 1**

## WHAT DO YOU DO IF YOU CAN'T SOLVE A PROBLEM?

Here are some thoughts to consider if you're stymied in the problem-solving process:

- Try to solve some related problem.
- Can you imagine a more accessible related problem?
- Can you find a more general problem?
- Can you think of a more specific problem?
- Is there an analogous or comparable problem?
- Can you solve part of the problem?
- Can you drop some of the requirements of your goal?
- By dropping some of the requirements, how much can you vary the solutions?
- Can you derive something useful from the information at hand?
- Can you think of other information appropriate for solving the problem?
- Can you change the goal, the information, or both if necessary so that the new goal and new information are closer together?

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SOURCE: Adapted from G. Polya, How to Solve It: A New Aspect of Mathematical Method (Princeton, NJ: Princeton Paperback, 1971), p. xvi. Copyright © 1954 by Princeton University Press; copyright © 1957 by G. Polya. Reprinted by permission of Princeton University Press.

When seeking information, it is useful to sort out not only the specific information needed, but also the purpose for which it will be used. Such a procedure can help you to determine the types of information required. For example, if you were installing a particular instructional program, you might consider taking such steps as the following:

- Conducting a needs assessment among local industries
- Appointing an advisory committee
- Determining curriculum and equipment needs
- Determining criteria for hiring instructors
- Determining which students to enroll
- Evaluating programs and instructors
- Identifying sources of funding for the program

In relation to the above decisions, you may seek the following kinds of information for the following specific purposes:

| | |
|---|---|
| • Information about local employers | • To determine the need for the program and the type of program needed |
| • Details about the makeup of advisory committees | • To guarantee that committee members are qualified to guide the development and operation of the program |
| • Information on curriculum and equipment needs | • To ensure that the program is based on sound content and is properly equipped |
| • Knowledge about qualifications of instructors | • To ensure that high-quality instruction is provided |
| • Information concerning which students to enroll | • To ensure that students have the background and qualifications to successfully participate in the program |
| • Information on techniques of program evaluation | • To measure the success of the program and the instructors' ability to carry it out |
| • Facts on funding sources | • To secure continued, appropriate support for the program |

All of these kinds of information are important to the establishment of a high-quality vocational program. Additional information may also be required once you have assessed your information needs. At the same time, information seeking should follow a logical sequence. For example, as shown, obtaining information on local employers is often a crucial first step in establishing a vocational education program.

For more information on problem solving, you may wish to read Carkhuff, The Art of Problem-Solving, pp. 10-15, and Appendix B, Problem-Solving Principles. This is a practical guide on personal problem solving for parents, teachers, counselors, and administrators. The author provides a chart for rating alternative solutions on the basis of personal values.

For a detailed and practical discussion of the various aspects of personal decision making, you may wish to consult Wheeler and Janis, A Practical Guide for Making Decisions, especially the sections on evaluating alternatives, pp. 51-74, overcoming setbacks, pp. 113-141, and consulting experts, pp. 143-175.

The following "Case Situation" describes a problem faced by Mr. Green, a vocational administrator. In the first part, the outline of the problem is given. Read Part I and then trace the problem through the problem-solving process. In Part II, additional information is given to help you weigh alternatives and make a decision. Read the information in each part and then describe in writing the problem and how you would decide on a course of action, using the directions provided after each part to guide your responses.

## CASE SITUATION

### Part I

Passage of the Education for All Handicapped Children Act (1975) and similar laws to provide equal educational opportunities for special populations has meant increased responsibilities for educators at all levels. Mr. Green, the vice-president for instruction at a large vocational institution, is no exception to this situation. Increasing numbers of students in Mr. Green's institution have been identified as special needs learners. In addition, students who were formerly taught in special classes are now being included in regular classrooms. Furthermore, female students, in small but growing numbers, have been enrolling in technical programs that just a few years ago included only male students.

Many members of Mr. Green's instructional staff have come from industry and are not used to teaching female or handicapped students. The instructors have been confused and suspicious in dealing with the multiple needs of special learners and the greater burden of paperwork required for the education of handicapped students. They are uncertain about what their responsibilities are, how they should deal with students, and where they can go for help.

Morale has been low during the last year, and some of the best technical instructors have been threatening to quit. As he begins planning for the coming academic year, Mr. Green feels he must do something to improve this situation.

*Trace Mr. Green's dilemma through the problem-solving sequence by completing the following activities:*

- *Describe Mr. Green's felt need.*
- *Diagnose and state Mr. Green's problem clearly.*
- *Outline the types of information that might be helpful to Mr. Green in solving his problem and the purposes for which the information would be used.*

## Part II

Applying problem-solving techniques and decision-making guidelines, Mr. Green developed the four following alternative solutions to his problem:

- Establish a year-long study group to make recommendations for reorganizing the instructional program to accommodate special needs populations
- Hire an affirmative action coordinator and additional special educators to minimize the classroom instructors' responsibilities for special students
- Develop an inservice program to improve staff sensitivity to the needs of special populations using a resource person, research-and-development-based curriculum materials, audiovisuals, and instructional aids
- Conduct a massive public relations campaign designed to help the entire institution and the community better understand the needs and the problems of special students

To evaluate his alternatives, Mr. Green developed a randomly ordered list of objectives and concerns.

He knows that he cannot afford to delay action because some of his best teachers are threatening to leave. He also has budgetary restrictions. He can allocate only $2,000-$3,000 for additional instructional projects during the coming year. And he can hire new staff only if justified by enrollment increases or staff resignations. Furthermore, the head of Mr. Green's institution sees this dilemma as an instructional problem and will block efforts to involve other offices or the community at large. All public relations activities are carried out by staff in another office, which will require additional coordination.

Mr. Green wants to involve the guidance and counseling staff as much as possible since they have expertise in dealing with special needs and affirmative action concerns. In addition, the instructional staff needs help in coping with Individualized Education Programs (IEPs) for their handicapped students. Many have been complaining about the lack of instructional resources for use with special students. There have been rumors that instructors in the technical areas have been discouraging female students, and a spot check of enrollment figures shows high dropout rates among females in traditionally male program areas. Instructors' contracts place strict limits on the amount of additional work they can be expected to do. Mr. Green's solution cannot require instructors to work overtime in dealing with special students.

*Assuming the role of Mr. Green, decide on a course of action by following the guidelines for making decisions. Indicate also at what points in the process additional information would be helpful.*

# NOTES

Compare your responses to Parts I and II of the "Case Situation" with the "Model Responses" given below. Your responses need not exactly duplicate the model answers; however, you should have covered the same major points.

## MODEL RESPONSES

### Part I

#### Identifying the Need

Mr. Green's felt need relates to two sides of the same problem. First, he senses that many of his instructors need training and experience in teaching special students in regular classrooms. Second, he recognizes that staff morale is low because new legal requirements mean added instructional responsibilities for teachers of handicapped students. He must find a means of dealing with both sides of the issue.

#### Diagnosing and Stating the Problem

In his diagnosis, Mr. Green determined that both students and instructional staff are affected by the problem. Ultimately, of course, the entire instructional program at Mr. Green's institution will be affected.

The conditions causing the problem are manifold. The passage of federal and state legislation to ensure equality of educational opportunity has burdened instructors and administrators with increased paperwork. More important, greater attention in recent years to the needs of special populations within education has changed the composition of schools, as well as the nature of instruction. Working with handicapped students in regular classrooms and laboratories is a new experience for Mr. Green's instructors, many of whom come from industry. In addition, the small but increasing numbers of female students in traditionally male programs have caused discomfort among instructors and students alike. The lack of a strong program to meet the needs of special students and the lack of clearly identified support services for regular instructors are other factors contributing to the problem.

The goals to be reached are to develop a means to assist instructors in dealing with special populations and the associated paperwork; to encourage recruitment and acceptance of nontraditional students; and, most important, to establish a comprehensive instructional response to the needs of special populations. The following is a sample definition of the problem:

> The passage of recent legislation and increasing numbers of nontraditional and special needs learners have increased the responsibilities and lowered the morale of the instructional

staff. A comprehensive program is needed to sensitize staff to the needs of special students, educate them in effective instructional techniques, and inform them about available support services.

## Identifying Helpful Information

Many types of information would be helpful to Mr. Green in solving his problem and deciding on a course of action. The following are some kinds of information that Mr. Green might seek:

| Information | Purpose |
|---|---|
| • Assessment of instructors' needs | • To determine areas in which instructors need assistance in dealing with special populations |
| • Enrollment statistics | • To determine the numbers and types of special populations in the institution; to determine the number of women; to determine dropout rates in specific programs |
| • Facts on legal requirements, such as the IEP | • To determine the institution's legal responsibility to special populations |
| • Details concerning the characteristics and needs of special populations | • To better understand special populations before planning programs to serve them |
| • Information on resources for serving special populations | • To locate sources of assistance in developing a program and easing instructors' work loads |
| • Information on successful vocational programming for special populations | • To consider the range of successful alternatives for dealing with special populations in vocational programs |
| • Information on inservice training and workshops for instructors | • To deal with instructors' low morale and possible bias toward special populations |
| • Facts on funding sources for programs dealing with special populations | • To locate additional support for the program to be developed |

In seeking a solution to his dilemma, Mr. Green could make use of research-and-development-based information, expert opinion, existing curriculum materials, and published reports, in addition to obtaining information from his own institution. Suggested outside resources include curriculum

guides; handbooks for vocational teachers of handicapped students; reports on programs for special populations; research summaries on affirmative action strategies and barriers to equal opportunity for special populations; and information on specific types of solutions, such as inservice programs, advisory committees, and so on.

## Part II

In responding to Part II, you should have followed these steps:

- Sorting out objectives into "musts" and "wants"
- Rank ordering objectives
- Evaluating alternatives against the objectives and considering their utility
- Choosing the alternative best able to achieve all the objectives
- Exploring the tentative decision for possible adverse consequences
- Controlling the effects of the final decision by taking other actions to prevent adverse consequences from becoming problems

### Objectives: "Musts"

1. Instructors must be sensitized to needs of special students.
2. Instructors must learn about effective teaching techniques to use with special students.
3. Instructors must learn about available support services.
4. The plan must be implemented during the coming academic year.
5. The budget must stay within $2,000-$3,000, unless a case can be made for additional staff.
6. Support must be obtained from the head of the institution.
7. The plan cannot require overtime on the part of instructors.

### Objectives: "Wants"

1. It is preferable not to involve the public relations staff because of the coordination required and the attitude expressed by the head of the institution.
2. The guidance and counseling staff should be involved in the solution because of their expertise in dealing with special needs and affirmative action concerns.
3. The solution should include some way of informing instructional staff about Individualized Education Programs (IEPs) required for handicapped students.

4. The solution should involve informing instructors about resources or should allow for the purchase of additional resources to assist in the teaching of special students.
5. The solution should involve strategies for recruiting and keeping female students in nontraditional programs.

Rank Ordering

Rank ordering of these objectives will depend on personal values, circumstances, and the amount of leeway in the problem situation. The "musts" listed previously are essentially in rank order, although avoiding instructor overtime, as a legal requirement, may be more important than obtaining the approval of the head of the institution, as this may be subject to negotiation. The budget may be negotiable as well, if Mr. Green can make a strong case for additional staff. The "wants" previously listed have been rank ordered according to our interpretation of Mr. Green's concerns, though once again, personal values are the determining factors.

Evaluation of Alternatives Against Objectives

Analysis of Alternative #1: Establish a year-long study group to make recommendations for reorganizing the instructional program to accommodate special needs populations.

The first alternative is quite attractive, as it fills all of Mr. Green's "wants" and five of seven "musts." It has the capacity for including all of his concerns for program and content, as his initial charge to the study group can incorporate the first three "musts," which are content related, and all the "wants." The public relations staff would not be involved, guidance and special needs staff can be included in the study group, and specific topics such as IEPs and affirmative action can be placed on the agenda. Alternative #1 must be rejected, however, because it will not involve immediate action and will require overtime on the part of study group members. Unless these "musts" can be answered in some other manner, alternative #1 is not viable.

Analysis of Alternative #2: Hire an affirmative action coordinator and additional special educators to minimize the classroom instructors' responsibilities for special students.

The second alternative may appear to be an easy solution, but it will not fulfill three of Mr. Green's "musts"--numbers one, two, and five. It is attractive because it promises to improve morale by relieving instructors of responsibilities toward special students. Improved morale, however, is not listed among the objectives. Rather, Mr. Green assumes that morale will

improve when instructors are better informed. On the other hand, hiring new staff will require him to make a special case, rework his budget, and spend time cutting red tape. It is an external, "Band-Aid" solution, unlikely to change instructor's attitudes or improve their techniques. This alternative is potentially doomed to failure.

Analysis of Alternative #3: Develop an inservice program to improve staff sensitivity to the needs of special populations using a resource person, research-and-development-based curriculum materials, audio-visuals, and instructional aids.

The third alternative offers the promise of meeting all the objectives. Assuming that inservice is a fixed component of the instructional program, Mr. Green can incorporate concerns of special populations, focus on instructors' needs, provide an immediate solution, and avoid the need for overtime or additional staff. Instructors can be sensitized to needs of special students, exposed to new teaching strategies, and informed about support services. Other more specific "wants" can also be placed on the inservice program. The budget for such a program can be limited, for the most part, to the resources available. The head of the institution is likely to support it because it involves only the instructional program. This is an immediate internal solution, likely to get at the root of the problem--instructors' inability to work effectively with special students.

Analysis of Alternative #4: Conduct a massive public relations campaign designed to help the entire institution and the community better understand the needs and problems of special students.

The fourth alternative is the least likely solution of the four to meet Mr. Green's "musts" and "wants." Such an effort might sensitize staff to the needs of special populations, but lacks the necessary focus on teaching techniques and specific subject matter concerns. Because it is targeted to a broad audience, including the community, the public relations campaign might miss the real audience--the instructors--altogether. It does not offer direct assistance to instructors, involves coordination with the public relations staff, and is likely to be vetoed by the head of the institution. The costs of the campaign are also likely to exceed Mr. Green's limited budget.

## Choosing the Best Alternative and Controlling Its Effects

Clearly, the third alternative is the best match with the "musts" and "wants" identified. It is practical, immediate, and probably the easiest to implement. If department chairpersons resisted Mr. Green's recommendation for a special needs program during the yearly inservice activities, he might have to argue his case. With the backing of the head of the school, the assistance of the guidance staff, budgeting for additional resources, and no overtime required from instructors, however, Mr. Green should be able to win support

for this approach. A needs assessment to determine the instructors' concerns should also help win their support for the inservice agenda.

However, the inservice program must provide continuing training and support concerning the problem of dealing with special populations. Two days of inservice will not significantly change teachers' attitudes or techniques. To ensure against such adverse consequences, Mr. Green must plan for the future. Setting aside resources, providing a "refresher" course during next year's inservice program, and planning for a career resource center are all actions that can help ensure the long-term effects of this solution. He might also want to involve the existing guidance and special education staff in an ongoing program to keep instructors informed of the resources available to them.

Points at Which Additional Information Would Be Helpful

Information from additional resources would be useful at several points in the decision-making process. Mr. Green's objectives are based on facts, including budgetary constraints and time lines. Unless he is particularly well informed in the area of special needs, he would require outside information to formulate the first three "musts": sensitizing instructors to special needs, informing them about teaching techniques, and identifying support services. His list of "wants" is likewise well informed. Information resources could help him select the features he wishes to include in his ideal solution.

Information can also contribute to the weighing of alternatives. By doing some background reading on programs for special students, Mr. Green might discover, for example, that sensitizing instructors to the needs of special students is the first requirement before other changes can be accomplished. Research on attitudinal barriers to special populations would be very useful in that case.

Alternative actions might be suggested or negated by outside information from studies, project reports, and expert opinion. Although individual situations differ, Mr. Green could probably locate important information on long-range or unexpected outcomes of his actions by consulting resources. Research reports and other information sources can provide important data on the utility of various alternatives, especially when decisions involve the content of educational programs, as opposed to routine management concerns.

Level of Performance: Your completed responses should have covered the same major points as the "Model Responses." If you selected an alternative other than the third one, you may need to reexamine your sorting of objectives and weighing of alternatives. If you missed other points or have questions about any additional or different conclusions you might have reached, review the material in the information sheet, "Use Problem-Solving and Information-Seeking Techniques to Help Improve Vocational Education Programs," pp. 7-12, or check with your resource person if necessary.

# Learning Experience II

## OVERVIEW

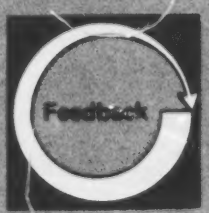
After completing the required reading, identify resources appropriate for the information need described in a given case situation and critique the information-seeking performance of a decision maker in a given case study.

You will be reading the information sheet, "Information Resources for Vocational Education," pp. 25-50.

You will be reading the "Case Situation," p. 51, and identifying resources appropriate for the information need described.

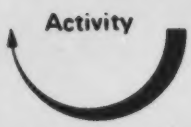
You will be evaluating your competency in identifying appropriate resources by comparing your completed response with the "Model Response," pp. 53-54.

You will be reading the "Case Study," p. 55, and critiquing the information-seeking performance of the decision maker described.




You will be evaluating your competency in critiquing the decision maker's information-seeking performance by comparing your completed critique with the "Model Critique," pp. 57-58.

# NOTES




The key to seeking information often is knowing where to go--what information resources are available. For information on what these resources are and how to use them, read the following information sheet.

## INFORMATION RESOURCES FOR VOCATIONAL EDUCATION

Knowing where to go to locate needed information can be crucial for vocational administrators, especially when the time available for decision making is short. Some situations, for example those that involve clear-cut personal or managerial decisions, may require only knowledge of the immediately and locally available facts. On the other hand, many educational problems and concerns have been studied extensively, and reports of such studies, expert opinion, and organizational assistance can be readily obtained through existing information systems and products.

To stay well informed, you should be familiar with the major information resources in the field. You should know not only what resources exist but where these are located and how they can be used. The means of accessing the major information systems and networks in education have been refined and simplified to make search and retrieval easier for educators at all levels. In some cases, locating needed information may be a simple matter of knowing the appropriate resource organization to call. In others, a computer-assisted search of databases may be required.

Whether the problem situation and resulting information need are simple or complex, you can benefit from the use of a "road map" for locating and acquiring resources. The following pages are intended as a guide to assist you in finding and using some of the major information resources in the field, including the Educational Resources Information Center (ERIC), the Research and Development Exchange, other state and regional dissemination networks, information product types, and specific products available from the National Center.

### Your Own Information Resources

The first thing you will often do when you need information is to tap your own information resources. All of us have information resources of our own and use them frequently and profitably. Like all information resources, these personal resources may be either materials or other persons.

#### Materials

You are very likely aware of many print or nonprint materials that may contain information you need. As part of your professional development activities, you probably read or view these materials frequently in order to keep

abreast of the lastest developments in your field, for example. Books, professional journals, popular periodicals, or even radio and television programs--these and many other materials abound.

A local library is an excellent place to find such information resources. You might use a library in your community, one in your own institution, or one in a nearby educational institution. If your library skills are rusty, don't hesitate to ask for help from one of the librarians.

Professional organizations that you belong to are another excellent source of information. Many such organizations publish regular newsletters or journals with information of interest to those in the field. You may read about model programs implemented elsewhere that could meet your needs, new research findings that might affect your administrative decisions, or new publications relevant to your own concerns.

## Other Persons

Equally valuable as information resources are other persons--staff members at your own institution, personal acquaintances, professional contacts, other members of organizations you belong to. A list of other persons who might be information resources for you could go on for pages.

Faculty or other administrators at your institution, for example, might have experienced problems or situations that are now confronting you. If so, they would likely be willing to share that experience with you. They may have advice on avoiding particular problems they encountered; they may know, from operating a particular program, what sorts of things to avoid in setting the program up, for instance.

Professional contacts may be especially helpful. An acquaintance in your state department of education may be aware of institutions or programs in your state that have faced and resolved problems that you now have. Or, such a contact might be able to identify a further contact for you--for example, a faculty member at a nearby university with acknowledged expertise in a given area. The same may be true of members of professional organizations you belong to--or even of the person who sat next to you at the last conference you attended. A quick telephone call to the right person is often the easiest way to get information.

## Information Systems and Networks

As stated previously, the best information resource is often the most accessible one. When these sources have been exhausted, however, there are additional sources you or your staff can tap. You need to be familiar with these sources to ensure that any search conducted is comprehensive and includes up-to-date resources.

## Educational Resources Information Center (ERIC)

Educators have ready access to one of the most comprehensive collections of materials available in the social sciences. The Educational Resources Information Center (ERIC) includes a wide variety of materials, such as curricula, handbooks, speeches, and reports. Many of these materials cannot be easily obtained from any source other than ERIC because they are unpublished or no longer available in any other way. In a recent survey of users conducted by ERIC staff, nine out of ten reported that they obtained information that they probably would not have found otherwise. Seven out of ten users said the information obtained from ERIC helped them professionally.

Materials included in ERIC are available in microfiche collections in 630 locations across the country. (A microfiche is a 4" x 6" sheet of microfilm on which up to 96 pages of an original document are reproduced.) These collections are updated regularly. You may visit any library with an ERIC microfiche collection and read or copy documents by using a microfiche reader or reader printer.

ERIC indexes. All items in the ERIC collection are indexed in either Resources in Education (RIE) or Current Index to Journals in Education (CIJE), both published monthly. RIE documents are any print material (including curricula, research reports, and conference presentations) other than journal articles. Documents in RIE are listed by ED number and indexed by subject, author, institutional source, and publication type. Document abstracts are printed in the resume section of every RIE issue (see sample 2, p. 29). CIJE is an index to the articles published in more than 775 educational journals. Articles in CIJE are listed by EJ number and indexed by subject, author, or journal title. Abstracts also appear in the resume section.

ERIC clearinghouses. One of the best ways to locate information in a short period of time is to contact one or more of the 16 ERIC clearinghouses. The clearinghouses are major components of the ERIC system, and each clearinghouse covers an area of specialty within education (see sample 3, p. 30). The user services coordinator in each clearinghouse is responsible for answering information requests, whether they involve searching the database, locating ERIC publications on the topic, or directing the requester to a resource organization.

Using ERIC. If you so desire, you can conduct a manual search to locate materials in ERIC by scanning Resources in Education (RIE) and Current Index to Journals in Education (CIJE). Scanning RIE and CIJE involves the following steps:

1. Begin by checking the subject index of both RIE and CIJE for two or three terms that best describe the topic you are searching.
2. Then, turn to the resume sections to read abstracts of candidate documents and articles.
3. If the abstract is on target in terms of the information you are seeking, you will want to obtain the entire document or article.

This method of searching can be time-consuming and will not yield the number of references that you can obtain from a computer search. However, it will help you become familiar with the format of RIE and CIJE if you are not already familiar with it. If you encounter difficulties in locating appropriate documents or articles, you may wish to consult the Thesaurus of ERIC Descriptors, which lists the precise terms (descriptors) used by ERIC in indexing materials. In some cases, materials on a specific subject may be indexed under a term that is unfamiliar. For example, in the 1980 thesaurus the term disabilities is used in place of handicapped, as shown in sample 4, p. 31.

For a number of reasons, you will most likely engage a search analyst for a computer-assisted search of ERIC (and other databases as required). Computer searching not only saves your precious time but also allows you to draw on the expertise of an analyst familiar with the content of the database. A more complex and well-defined search is possible via computer, because several terms or descriptors can be combined in searching for relevant documents. A computer search also automatically provides a bibliography or reference list. Furthermore, the search can be limited to specific types of documents as well as specific years. Finally, a computer search is more comprehensive, because the computer can search for terms that appear in the title and the abstract, as well as all assigned terms in the subject index.

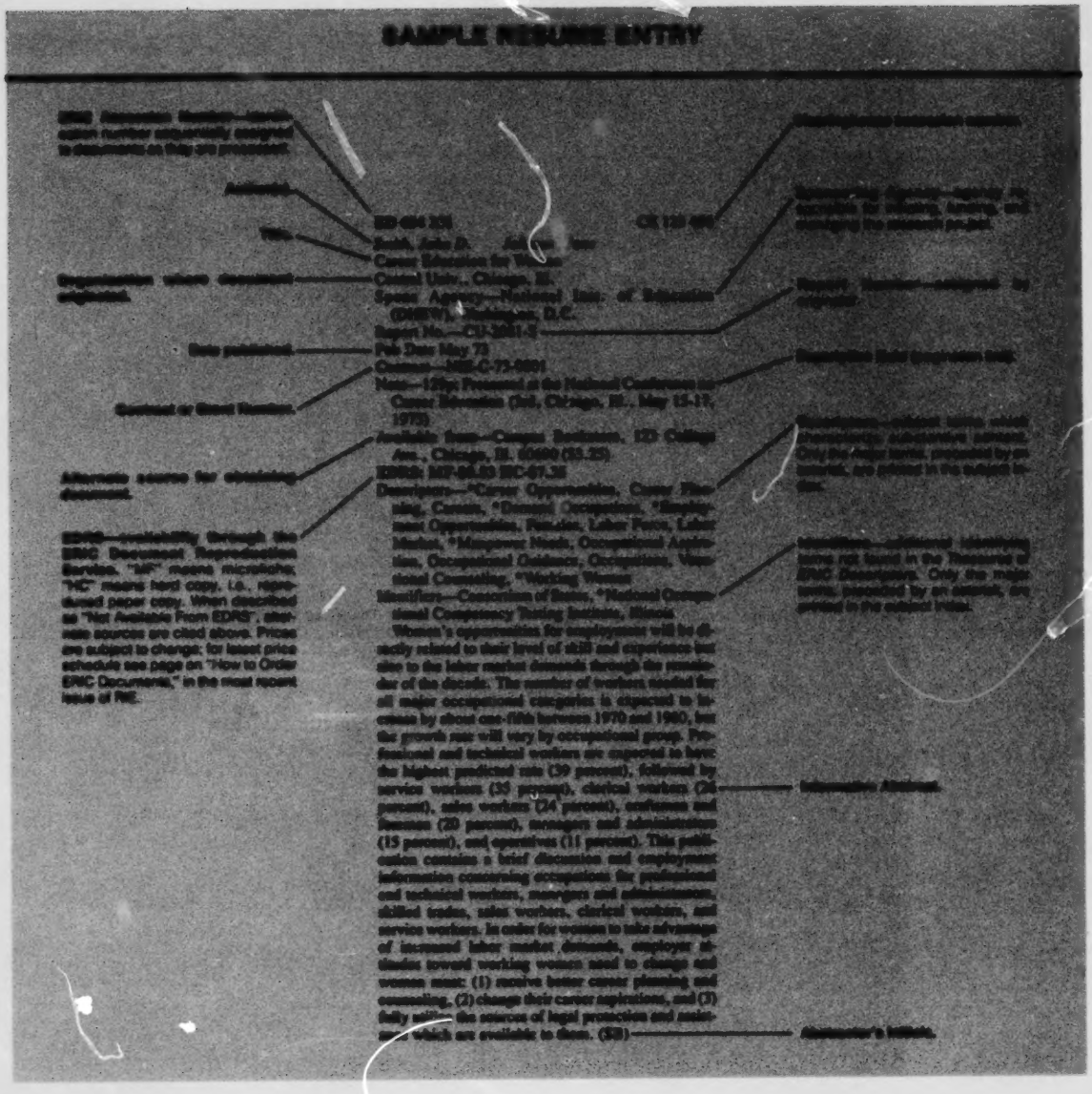
Computer search facilities are located in over 500 institutions or agencies nationwide. If a facility is not available in your particular geographic area, a computer search can also be arranged by calling the ERIC Clearinghouse that specializes in the topic of concern.

In conducting a computer-assisted search, the analyst will determine a search strategy after discussing with you the type of information you need. The analyst will then identify descriptors in the thesaurus and combine them to make the search as precise as possible. For example, in a computer search on inservice programs dealing with special needs and sex equity, the search analyst would combine terms dealing with special students, women, and inservice education. A printout of the search would include abstracts of all documents and journal articles retrieved (if abstracts are requested), allowing for further selection of the precise documents and journal articles needed.

Ordering documents. Once appropriate documents (ED numbers) have been identified, they can be read on microfiche at a facility with an ERIC microfiche collection or ordered in microfiche (MF) or paper copy (PC) form from the ERIC Document Reproduction Service (EDRS). All document abstracts also contain information on where to locate the full document. For articles (EJ numbers), the journal title, volume, issue, and page numbers are provided. Journal reprints are also available through University Microfilms International. Sample 5, p. 32 is an EDRS order form.

If you desire more information about searching the ERIC system or if you wish to locate the nearest microfiche collection or search service, the ERIC publications in sample 6, p. 33 (which are available from any clearinghouse) should be helpful to you.

**SAMPLE 2**


SAMPLE RESUME ENTRY
Author(s).
Title.
Sponsoring agency.
Publication date.
Contract or Grant Number.
Alternate source for obtaining document.
EDRS—availability through the ERIC Document Reproduction Service. "MF" means microfiche; "HC" means hard copy, i.e., reproduced paper copy. When described as "Not Available From EDRS", alternate sources are cited above. Prices are subject to change; for latest price schedule see page on "How to Order ERIC Documents," in the most recent issue of RIE.
Smith, John D. Author's Name
Career Education for Women.
Career Education for Women
Career Education for Women
Career Education for Women

**SAMPLE 3**

## ERIC CLEARINGHOUSES

ERIC Clearinghouse on Adult, Career, and Vocational Education
The Ohio State University
The National Center for Research in Vocational Education
1960 Kenny Road
Columbus, OH 43210
Telephone: (614) 486-3655

ERIC Clearinghouse on Counseling and Personnel Services
University of Michigan
School of Education Building
Room 2108
Ann Arbor, MI 48109
Telephone: (313) 764-9492

ERIC Clearinghouse on Educational Management
University of Oregon
Eugene, OR 97403
Telephone: (503) 686-5043

ERIC Clearinghouse on Elementary and Early Childhood Education
University of Illinois
College of Education
Urbana, IL 61801
Telephone: (217) 333-1386

ERIC Clearinghouse on Handicapped and Gifted Children
Council for Exceptional Children
1920 Association Drive
Reston, VA 22091
Telephone: (703) 620-3660

ERIC Clearinghouse on Higher Education
George Washington University
One Dupont Circle, Suite 630
Washington, DC 20036
Telephone: (202) 296-2597

ERIC Clearinghouse on Information Resources
Syracuse University
School of Education
Syracuse, NY 13210
Telephone: (315) 423-3640

ERIC Clearinghouse for Junior Colleges
University of California at Los Angeles
Powell Library, Room 96
Los Angeles, CA 90024
Telephone: (213) 825-3931

ERIC Clearinghouse on Languages & Linguistics
3520 Prospect Street, N.W.
Washington, DC 20007
Telephone: (202) 298-9292

ERIC Clearinghouse on Reading and Communication Skills
National Council of Teachers of English
1111 Kenyon Road
Urbana, IL 61801
Telephone: (217) 328-3870

ERIC Clearinghouse on Rural Education and Small Schools
New Mexico State University
Box 3AP
Las Cruces, NM 88003
Telephone: (505) 646-2623

ERIC Clearinghouse for Science, Mathematics, and Environmental Education
The Ohio State University
1200 Chambers Road, Third Floor
Columbus, OH 43212
Telephone: (614) 422-6717

ERIC Clearinghouse for Social Studies/Social Science Education
855 Broadway
Boulder, CO 80302
Telephone: (303) 492-8434

ERIC Clearinghouse on Teacher Education
American Association of Colleges for Teacher Education
One Dupont Circle, N.W., Suite 616
Washington, DC 20036
Telephone: (202) 293-2450

ERIC Clearinghouse on Tests, Measurement, and Evaluation
Educational Testing Service
Princeton, NJ 08541
Telephone: (609) 921-9000
Ext. 2176

ERIC Clearinghouse on Urban Education
Box 40
Teachers College, Columbia University
525 W. 120th Street
New York, NY 10027
Telephone: (212) 678-3437

## SAMPLE 4

### A LISTING FROM THE THESAURUS OF ERIC DESCRIPTORS

March 1980

DISABILITIES
CIJE: 428 RIE: 585

SN Physical, mental, or sensory impairments that render major life activities more difficult (note: use a more specific term if possible)

UF Disabled
Handicapped (1966; 1980)
Handicaps

NT Adventitious Impairments
Communication Disorders
Congenital Impairments
Developmental Disabilities
Diseases
Hearing Impairments
Injuries
Language Handicaps
Learning Disabilities
Mental Disorders
Mental Retardation
Mild Disabilities
Multiple Disabilities
Perceptual Disabilities
Physical Disabilities
Severe Disabilities
Special Health Problems
Speech Handicaps
Visual Impairments

RT Ability
Accessibility (for Disabled)
Adapted Physical Education
Daily Living Skills
Exceptional Persons
Health
Mainstreaming
Normalization (Handicapped)
Patients
Rehabilitation
Residential Care
Respite Care
Self Care Skills
Sheltered Workshops
Special Education
Therapy

NOTE: Abbreviations on the left are as follows: SN = scope note, the definition of the term as used in ERIC; UF = used for another term; NT = narrower term; BT = broader term; RT = related term.

SAMPLE 5

## HOW TO ORDER ERIC DOCUMENTS

**ERIC** DOCUMENT REPRODUCTION SERVICE
P.O. Box 190 ARLINGTON, VIRGINIA 22210 • (703) 841-1212
OPERATED BY: COMPUTER MICROFILM INTERNATIONAL CORP.

ORDER FORM

### IMPORTANT INSTRUCTIONS

- ORDER BY ED NO. (6 digits) See Resources in Education (RIE)
- SPECIFY EITHER: Microfiche (MF) or Paper Copy (PC)
- ENTER UNIT PRICE (See Below)
- INCLUDE SHIPPING CHARGES (See Charts Below)
- ENCLOSE CHECK OR MONEY ORDER Payable to EDRS in U.S. Funds. Check must indicate the U.S. transit number of your banks agency
- OR ENCLOSE AUTHORIZED ORIGINAL PURCHASE ORDER
- COMPLETE AND SIGN BELOW

SHIP TO: _____

BILL TO: _____

Date _____

Signature _____

Title _____

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| DEPOSIT ACCT. NO. _____ | | | | SHIPPING | |
| | | | | TOTAL | |

SAMPLE

#### UNIT PRICE SCHEDULE

**MICROFICHE (MF)**

| NUMBER FICHE EACH ED # | PRICE CODE | Price |
|---|---|---|
| 1 to 5 (up to 480 pages) | MF01 | $ .83 |
| 6 (481-576 pages) | MF02 | 1.05 |
| 7 (577-672 pages) | MF03 | 1.17 |
| 8 (673-768 pages) | MF04 | 1.34 |
| Each additional microfiche (additional 96 pages) | | .17 |

**PAPER COPY (PC)**

| NUMBER PAGES EACH ED # | PRICE CODE | Price |
|---|---|---|
| 1 to 25 | PC01 | $1.67 |
| 26 to 50 | PC02 | 3.32 |
| 51 to 75 | PC03 | 4.67 |
| 76 to 100 | PC04 | 6.32 |
| Each additional 25 pages | | 1.66 |

#### CHARTS FOR DETERMINING SHIPPING CHARGES

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|---|---|---|---|---|---|---|---|
| Not to Exceed $1.14 | Not to Exceed $1.76 | Not to Exceed $1.78 | Not to Exceed $2.08 | Not to Exceed $2.39 | Not to Exceed $2.70 | Not to Exceed $3.02 | Not to Exceed $3.33-$7.08 |

NOTE—Orders for 20 or more microfiche and all orders for paper copies (PC) will be shipped via United Parcel Service unless otherwise instructed

Revised June 1975

COPIES OF THIS FORM MAY BE OBTAINED FROM EDRS

**SAMPLE 6**

## PUBLICATIONS AVAILABLE FROM ERIC

1. How to Use ERIC. Washington, DC: U.S. Government Printing Office, 1979. (Free)

   This brief brochure includes sections describing the ERIC system, the ERIC reference tools, how to use the reference tools, how to obtain documents from ERIC, and how to order ERIC products.

2. Directory of ERIC Microfiche Collections. Bethesda, MD: ERIC Processing and Reference Facility, 1978. (Free)

   This directory lists the location, telephone number, contact person, collection status (whether complete or partial), equipment, services, and access hours for the more than 630 ERIC microfiche collections.

3. Directory of ERIC Search Services. Bethesda, MD: ERIC Processing and Reference Facility, 1978. (Free)

   This directory lists more than 500 locations where computer-assisted ERIC search services are available. Each listing includes the address of the facility, the population served, the files available, the method and format used for the search, the search output (whether abstracts, citations, or accession numbers), cost per search, turn-around time, and search system used.

4. How to Start an ERIC Collection. Washington, DC: The National Institute of Education, 1979. (Free)

   This booklet outlines reasons for starting an ERIC collection, how to start a collection, and the features that should be included in a collection.

## Research and Development Exchange (RDx)

If you need help in locating organizations, individuals, or materials on a regional or state basis, you may wish to contact a state linker or regional exchange in the Research and Development Exchange (RDx). RDx is a nationwide network of regional exchanges organized to assist state and local school improvement efforts (see sample 7, p. 37). These exchanges are linked to state departments of education and intermediate and local education agencies in 43 states. The network operates when you call upon linkers (resource persons) in state departments of education for information. The linker refers the question to the regional exchange, which responds to the request. In some cases, you will go directly to the exchange with your information need. Regional exchanges are located at educational laboratories in West Virginia, Missouri, Oregon, Pennsylvania, Texas, and California.

In addition to the regional exchanges, there are four central service agencies, each with different tasks in gathering and sharing information. The four agencies include: (1) CEMREL, Inc., St. Louis, MO, which operates the Research and Development Interpretation Service; (2) The National Center for Research in Vocational Education, Columbus, OH, which operates the Resource and Referral Service; (3) Far West Laboratory for Educational Research and Development, San Francisco, CA, which operates the System Support Service; and (4) Northwest Regional Educational Laboratory, Portland, OR, which operates the Dissemination Support Service. As a vocational administrator, you are most likely to use the Resource and Referral Service (RRS).

Resource and Referral Service (RRS). The Resource and Referral Service is the main request-answering service of the Research and Development Exchange. Each year, RRS staff members answer information requests on hundreds of topics from regional exchanges or individuals. Staff refer those making the request to organizations, projects, meetings, publications, and individuals specializing in the topic or issue of concern.

When RRS staff receive a request, they search files on previous requests and resource organizations to locate the best sources of information on the topic. They contact organizations directly to obtain more specific information and locate contact people or schools doing work in the topic area. Finally, staff will put the individual making the request in touch with those individuals, schools, or organizations active in the area of concern. Each response is individualized, taking into consideration geographic, time, or other constraints. Information requests have covered such diverse topics as curriculum for operating forklifts, state substance abuse legislation, evaluation of information centers, and legal precedents on school reorganization and desegregation.

RRS also prepares several types of reference materials. One is a mini-list--a brochure on a single topic of recent educational interest (see sample 8, p. 38). The mini-list also identifies organizations that specialize in the topic area. Mini-lists are currently available on 32 topics (see sample 9, p. 39). RRS has also developed reference publications that you can use in locating resources and organizations without going through your state

department of education or regional exchange. These publications are as follows:

- Databases and Clearinghouses: Information Resources for Education (1979)--This is a catalog of one-page summaries of 54 databases and 30 clearinghouses covering many areas of education. You might find this publication useful in locating databases or clearinghouses that cover a particular area of concern in vocational education (e.g., energy and environmental education, language, women's equity, adult and community education). For databases, information is provided on means of searching, types of documents included in the collection, means of retrieving information, and information contacts or vendors (organizations offering the database). For clearinghouses, information on major functions, services, publications, and principal clients and information contacts is given. It can be ordered from National Center Publications (IN 167). It is also available through ERIC (ED 184 534).
- Meetings Exchange--A quarterly publication, Meetings Exchange, lists, in chronological order, meetings and conferences sponsored by educational organizations. It is distributed by RRS on a limited basis, but if you desire information on the time and location of a national meeting or conference, you can write or call RRS staff directly and receive the information you need.
- Human Resource Directories and Files in Education (1979)--This is a listing of files on individuals with expertise in specific areas of education. Fifteen directories of specialists are provided, including the Directory of Organizations and Personnel in Educational Management, the Training Resources Consultant Directory and Buyer's Guide, and the 1978-79 Directory of Resources for the Education of Adults. If you need the advice or assistance of consultants, experts, or specialists in certain areas of education and training, you can consult this guide, locate the appropriate directory, and write directly to that address in order to obtain the directory itself. Human Resource Directories and Files in Education can be obtained through ERIC (ED 179 209).
- Private Organizations and Associations: Information Resources for Education (1978)--This publication was developed by the Consortium of Associations for Educational Dissemination, Arlington, VA, and is available through ERIC (ED 162 632). It lists educational associations, professional membership organizations, educational laboratories and centers, advocacy groups, education-related organizations, multimedia organizations, and foundations. An abstract on each organization identifies location, subject area, objectives, membership, sources of funding, and organizational structure. The index identifies organizations by (1) subject area or special focus and (2) educational level or target audience. The quick reference to activities provides a glossary of organizations and a checklist of their specific activities and services. You can use this guide to locate organizations or educational laboratories doing work in a specific area of vocational education for a specific educational level or target group.

- Dissemination Networks: Information Resources for Education (1978)--Developed by the Far West Laboratory for Educational Research and Development, this document describes networks in specific areas of education. It includes the following information on each network listed: major functions, network members, target audience, description, available information, contractors, and date established. A contact person is listed for each network. Many times, you can contact the nearest representative of a network specializing in your topic of concern and be directed to appropriate materials, organizations, or experts. In fact, many of the networks mentioned in this information sheet--including ERIC, RRS, the National Network for Curriculum Coordination in Vocational and Technical Education (NNCCVTE), and the state vocational education Research Coordinating Units (RCUs)--are listed in this publication. It can be ordered from Educational Resource Center, 855 Broadway, Boulder, CO 80302. It is also available through ERIC (ED 162 633).

Using RDx and RRS. Attempt to explain your information need clearly in sharing it with a state or regional linker in the exchange. You can share your information need with a contact person in the state department of education if you are in one of the 43 RDx member states or with a contact in the nearest regional exchange. Ideally, your institution's library should have all of the publications mentioned here. In that case, you can identify appropriate databases, clearinghouses, organizations, and experts directly. (For an example of the resources that can be located for a particular topic through these documents, see sample 10, pp. 40-41.) If you cannot reach a state or regional representative of the exchange or if your information need is unusual, you can contact the RRS staff directly by calling (614) 486-3655 or (800) 848-4815 (toll free).

SAMPLE 7

## RESEARCH AND DEVELOPMENT EXCHANGE (RDx)

Appalachia Educational Laboratory, Inc. (AEL)
P.O. Box 1348
Charleston, WV 25325
Telephone: (304) 344-8371

CEMREL, Inc.
3120 59th Street
St. Louis, MO 63139
Telephone: (314) 781-2900

Mid-continent Regional Educational Laboratory (McREL)
4709 Bellview Avenue
Kansas City, MO 64112
Telephone: (816) 756-2401

Northwest Regional Educational Laboratory (NWREL)
710 S. W. Second Avenue
Portland, OR 97204
Telephone: (503) 248-6869

Research for Better Schools, Inc. (RBS)
444 North Third Street
Philadelphia, PA 19123
Telephone: (215) 574-9300

Southwest Educational Development Laboratory (SEDL)
211 East Seventh Street
Austin, TX 78701
Telephone: (512) 476-6861

Southwest Regional Laboratory (SWRL)
4665 Lampson Avenue
Los Alamitos, CA 90720
Telephone: (213) 598-7661, Ext. 367

**SAMPLE 8**

**MINI-LIST**

# RRS MINI-LIST

**Resources for DEVELOPING INDIVIDUALIZED EDUCATION PROGRAMS (IEPs) FOR HANDICAPPED STUDENTS**

**BUREAU OF EDUCATION FOR THE HANDICAPPED (BEH)**
400 Maryland Avenue, S.W.
Washington, D.C. 20202
Telephone: (202) 245-9884
Contact: Jane Hoyt
Office of Public Affairs
Information Specialist for Handicapped Education

The Bureau of Education for the Handicapped (BEH) within the U.S. Office of Education (USOE) provides leadership to the field and funds numerous projects, some of which are designed to support the development of Individualized Education Programs under the Education of All Handicapped Children Act (Public Law 94-142). A pamphlet describing in layperson's language a brief history of BEH and the major programs offered by each division will be available in Fall 1978. Contact Jane Hoyt to obtain a free copy.

The USOE journal, *American Education*, published a two-part series of articles on individualized education programs in October and November 1977. Articles planned for Fall 1978 will address the changing attitudes and adjustments being made in response to the implementation of mainstreaming programs and practices. Single issues of the journal can be ordered at a cost of $1.10 from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Several major BEH program efforts to support the development of IEPs and other requirements of P.L. 94-142 are described on the following two panels.

**RESOURCE & REFERRAL SERVICE**

*Educational Programs That Work*, a descriptive catalog of NDN exemplary programs, is updated annually. The latest edition can be purchased for $4.95 from:

Far West Laboratory for Educational Research and Development
1855 Folsom Street
San Francisco, California 94103
Telephone: (415) 565-3078
Contact: Diane McIntyre

A list of NDN State Facilitator projects is included in the catalog, or interested individuals may obtain this information directly from their State Department of Education.

**RESEARCH FOR BETTER SCHOOLS, INC. (RBS)**
1700 Market Street
Philadelphia, Pennsylvania 19107
Telephone: (215) 561-4100, Ext. 378
Contact: Joanne B. Stolte
Director of Special Education

A grant from the Bureau of Education for the Handicapped provided funds for the Special Education Division of RBS to develop *Clarification of P.L. 94-142 for the Classroom Teacher* (single copies $3.00, 10 copies $27.00, 50 copies $125.00; no charge for postage and handling; orders under $25.00 must be prepaid).

Intended for regular classroom teachers, the guide contains three major sections: (1) an explanation of the purposes and major provisions of Public Law 94-142; (2) questions teachers most frequently ask about the law and answers to these questions; and (3) activities to help teachers prepare themselves and their students for implementing the law. One appendix restates in lay terms the highlights of the Federal regulations, and another provides an annotated bibliography especially prepared for classroom teachers. The guide was field tested with teachers in both elementary and secondary schools. A free brochure is available upon request.

Other resources on this topic may be obtained by contacting RRS at the National Center for Research in Vocational Education. Telephone: (614) 486-3655

The Resource & Referral Service is part of the Research & Development Exchange which is sponsored by the National Institute of Education, Washington, D.C. 20208.

THE NATIONAL CENTER FOR RESEARCH IN VOCATIONAL EDUCATION
THE OHIO STATE UNIVERSITY
1960 KENNY ROAD · COLUMBUS, OHIO 43210

10.3 7/27/78 CWL

**SAMPLE 9**

**RRS MINI-LISTS**

1. Resources for Competency Based High School Graduation Requirements
2. Resources for Evaluating Teacher Performance
3. Resources for School Energy Needs
4. Resources for Assessing Student Competencies
5. Resources for Improving the Reading Ability of Adults
6. Resources for Metric Education
7. Resources for Citizen Involvement in Education
8. Resources for Educating Gifted and Talented Students
9. Resources for K-12 Instructional Materials on Women's Educational Equity
10. Resources for Developing Individualized Education Programs (IEPs) for Handicapped Students
11. Resources for Financial Information for School Districts
12. Resources for Bilingual Education
13. Resources for Reducing and Preventing School Violence and Vandalism
14. Resources for Full Utilization of School Facilities
15. Resources for Functional Literacy
16. Resources to Access Innovative Educational Programs
17. Resources for Preventing Child Abuse and Neglect
18. Resources for Parent Education
19. Resources for Competency-Based Adult Education
20. Resources for Nutrition Education
21. Resources for Helping the Handicapped Gain Access to Educational Programs
22. Resources for School Discipline
23. Resources for Teachers' Centers
24. Resources for School Desegregation
25. Resources for Nondiscriminatory Testing and Measurement
26. Resources for Consumer Education
27. Resources for Television in Education
28. Resources for Assessing Oral and Written Communication Skills
29. Resources for Developing Oral and Written Communication Programs
30. Resources for Microcomputers in Education
31. Resources for Rural Education
32. Resources for Stress Management

## SAMPLE 10

## RESOURCES IDENTIFIED THROUGH THE RESEARCH AND DEVELOPMENT EXCHANGE ON VOCATIONAL EDUCATION AND/OR SPECIAL POPULATIONS

Private Organizations and Associations

American Association of Community and Junior Colleges (AACJC)
Suite 410
One Dupont Circle, N.W.
Washington, DC 20036
(202) 293-7050

This association promotes the interest of community-based higher educational institutions on the national level and acts as a liaison between the federal government and these institutions. It conducts research and development projects on instructional materials and information to assist members in improving community and junior college education. Its dissemination activities include the Community and Junior College Journal and an annual directory of community, junior, and technical colleges.

Council for Exceptional Children (CEC)
1920 Association Drive
Reston, VA 22091
(703) 620-3660

The Council promotes the advancement of all exceptional children and youth, both handicapped and gifted, in the U.S. and Canada. Its work includes an extensive publications program; policy research and implementation programs; conferences, conventions, and seminars; and technical assistance and information services. Dissemination activities include publication of two journals, Exceptional Children and Teaching Exceptional Children; a newspaper; resource library; training institutes; and an annual international convention.

National Association of State Directors of Special Education (NASDSE)
1201 16th St., N.W., Suite 610E
Washington, DC 20036
(202) 833-4193

This association promotes leadership for the development of educational services and facilities for exceptional children, youth, and adults. It conducts studies and offers courses of action on problems and issues and provides inservice training/technical assistance for state education agencies. In addition, it acts as a liaison with education agencies working with and for exceptional children. Its dissemination activities include publications, audiovisual presentations, and training conferences and workshops offered as needed.

National Vocational Guidance Association (NVGA)
Two Skyline Place, Suite 400
5203 Leesburg Pike
Falls Church, VA 22041
(202) 483-4633

This association promotes vocational guidance and career planning; increased recognition and status for the profession of counseling; and improved skills, systems, and standards of service in counseling. Dissemination activities include publication of The Vocational Guidance Quarterly and the NVGA Newsletter.

American Vocational Association (AVA)
2020 N. 14th St.
Arlington, VA 22201
(703) 522-6121

This association is involved in a wide variety of activities related to the improvement of vocational education. Typical activities include organizing conferences and seminars to help members develop professionally; presenting the views of the membership to Congress and federal agencies; and conducting research projects and disseminating findings. Dissemination activities include publication of a monthly journal, VocEd; a newsletter, Update; an annual convention; and leadership training workshops.

## Databases

A database is any file of information of interest to educators that can be accessed by computer.

CEC (Exceptional Child Education Resources)

This is a comprehensive computerized database covering documents on the education of handicapped and gifted children. It also includes documents on other aspects of handicapped/gifted populations when applicable as, for example, those on bilingual populations, the culturally different, or adults. The types of documents included in this database are books, literature, guides, journal articles, manuals, newsletters, conference/research reports, and nonprint media.

SSCI (Social Scisearch)

This database covers every area of the social and behavioral sciences: anthropology, archaeology, area studies, business, finance, communications, health, criminology, demography, economics, education, ethnic groups, geography, history, information, international relations, law, linguistics, management, marketing, philosophy, political science, psychology, psychiatry, sociology, statistics, and urban development. More than 1,500 journals are the source documents for this database.

## Clearinghouses

A clearinghouse is any organization or project that acquires and shares information resources on specialized topics.

Clearinghouse on the Handicapped
Office for Handicapped Individuals
Department of Education
330 C Street, S.W.
Washington, DC
(202) 245-1961

The major function of this clearinghouse is to improve information services for all handicapped individuals, those serving the handicapped, and interested members of the public. It refers inquiries to appropriate information sources.

## Other Dissemination Networks

National Network for Curriculum Coordination in Vocational and Technical Education (NNCCVTE). This network, funded by the U.S. Department of Education, consists of six regional curriculum coordination centers with liaison representatives in each state and territory. The major function of the network is to provide information, instructional materials, inservice training, and technical assistance to help states improve their curriculum development and management practices in vocational and technical education. The centers emphasize the adaptation or adoption of federal, state, or locally developed materials to conserve resources and improve states' capabilities in curriculum development. The six regional centers and the states they serve are shown in sample 11.

Research Coordinating Units (RCUs). RCUs are located in every state and are designed to assist the state director of vocational education in carrying out that part of the vocational education legislation dealing with improvement of programs. They do this through support of research programs, exemplary and innovative programs, curriculum development programs, and dissemination of information on these programs. The RCUs use vocational education program improvement funding, either directly or by contract, for projects relating to (1) applied research and development in vocational education; (2) experimental, developmental, or pilot programs to test the effectiveness of research findings; (3) improved curricular materials for existing programs and new curricula; and (4) the development or installation of exemplary and innovative programs. Dissemination of the results of funded projects is a major responsibility of the RCUs. You may contact your RCU through your state department of education.

National Diffusion Network (NDN). Funded by the National Institute of Education as part of its Research and Development Utilization program, NDN encourages the use of innovations in solving educational problems. NDN gathers information about innovations--projects, products, and materials--for review by the Joint Dissemination Review Panel (JDRP). The JDRP review ensures that innovations disseminated by NDN are of high quality. Innovations approved by JDRP and disseminated by NDN are described in the catalog Educational Programs That Work (1981).

## SAMPLE 11

# NNCCVTE REGIONAL CENTERS

**Northeast Curriculum Coordination Center**

States and territories served: Virgin Islands, Puerto Rico, Rhode Island, Vermont, New Jersey, Connecticut, Maine, Massachusetts, New Hampshire, New York

Bureau of Occupational and Career Research Development
Division of Vocational Education
225 West State Street
Trenton, NJ 08625
(609) 292-6562

**Southeastern Curriculum Coordination Center**

States served: Tennessee, Mississippi, Florida, Georgia, North Carolina, Kentucky, South Carolina, Alabama

Mississippi State University
Research and Curriculum Unit
Drawer DX
Mississippi State, MS 39762
(601) 325-2510

**East Central Network Illinois Vocational Curriculum Center**

States served: Illinois, Delaware, Pennsylvania, Minnesota, Indiana, West Virginia, Virginia, Maryland, Ohio, Wisconsin, Michigan, District of Columbia

ECN/IVCC
Sangamon State University
Springfield, IL 62708
(217) 786-6600

**Midwest Curriculum Coordination Center**

States served: Oklahoma, Arkansas, Texas, Kansas, Missouri, Nebraska, New Mexico, Iowa, Louisiana

State Department of Vocational and Technical Education
1515 West 6th Avenue
Stillwater, OK 74074
(405) 377-2000, ext. 261

**Northwest Curriculum Coordination Center**

States served: Washington, Alaska, Colorado, Idaho, Montana, North Dakota, South Dakota, Oregon, Utah, Wyoming

Commission for Vocational Education
Building 17, Airdustrial Park
MS LS--10
Olympia, WA 98504
(206) 753-0879

**Western Curriculum Coordination Center**

States and territories served: California, Arizona, Hawaii, Nevada, American Samoa, Guam, Trust Territory of Pacific Islands

University of Hawaii
College of Education
1776 University Avenue
Wist 216
Honolulu, HI 96822
(808) 948-7834

## Information Products

Vocational administrators should feel encouraged that their information needs are receiving greater attention. Materials can be obtained through ERIC and such organizations as the American Vocational Association and the American Association of Community and Junior Colleges. The National Center for Research in Vocational Education regularly develops resources for vocational administrators, specifically those being produced under the sponsorship of several states that financially support the Consortium for the Development of Professional Materials for Vocational Education.

Three additional reference materials from the National Center's Clearinghouse may also be useful to you if you are seeking information on products and funded projects in vocational education. Resources in Vocational Education (RIVE), a bimonthly index, lists all documents contained in Resources In Education (RIE) that pertain to vocational education, as well as all vocational education projects in progress. RIVE can be obtained from the National Center by subscription. Projects in Progress: A Report for the Coordinating Committee on Research in Vocational Education is a compilation of resumes on ongoing projects in career education, vocational education, and education and work for each fiscal year. The contracts and grant awards reported in this document are administered by the Department of Education's Division of Research and Demonstration and Office of Career Education, the National Institute of Education, the Fund for the Improvement of Postsecondary Education, and other federal agencies. Annual reports are available from the National Center; reports are also submitted for inclusion in ERIC as they are completed. Current Projects in Vocational Education: State-Administered Projects is a compilation of resumes of research, exemplary and innovative, and curriculum development projects administered by state departments of education through Research Coordinating Units (RCUs) each fiscal year. It is also available through ERIC.

The following are categories of information product types, with examples of publications from the National Center. The items in sample 12 are also from the National Center. The publications in sample 12, which focus on serving special needs populations, are just a few of the many products developed by the National Center in this area. They cover a range from research review and synthesis papers to handbooks and practical guides for use in the vocational guidance or instruction of students with special needs.

### Original Research Reports

Original research reports usually present the theoretical base, methodology, findings, conclusions, and recommendations of a study, analysis, or evaluation conducted to provide answers to research questions. Researchers are the primary audience for such reports, although administrators doing extensive work in a problem area might refer to the findings and conclusions of such a report.

**SAMPLE 12**

## PUBLICATIONS ON SPECIAL NEEDS POPULATIONS AVAILABLE FROM THE NATIONAL CENTER

RD 174 "It Isn't Easy Being Special"--I Like You When I Know You: Attitudinal Barriers to Responsive Vocational Education for Handicapped Students by Lynn Brant, 1979

RD 175 "It Isn't Easy Being Special"--Let's Work Together: Intervention Strategies for Learners with Special Needs, 1979

RD 176 "It Isn't Easy Being Special"--Let's Find the Special People: Identifying and Locating the Special Needs Learners, 1979

RD 177 "It Isn't Easy Being Special"--Here Are Programs That Work: Selected Vocational Programs and Practices for Learners with Special Needs, 1979

RD 178 "It Isn't Easy Being Special"--Resources: Agencies and Organizations That Serve Special Needs Learners, 1979

RD 184 "It Isn't Easy Being Special"--Let's Help Special Needs Learners: A Resource Guide for Vocational Education Teachers by Denie Denniston, Nancy Lust, Leila Hutchison, and others, 1980

BB 50 "It Isn't Easy Being Special"--Resources: Materials for Special Needs Learners, 1979 (a comprehensive bibliography)

IN 145 Guidance Needs of Special Populations by Thelma C. Lennon, 1979 (includes definitions and characteristics of these populations)

SN 25 Taking on Tomorrow by Ned White, 1980 (ideas and experiences on mainstreaming programs for handicapped students in postsecondary schools)

IN 205 Individualized Education Programs (IEPs): A Filmstrip/Audiotape for Vocational Educators, 1980

IN 188 Individualized Education Programs (IEPs): A Handbook for Vocational Educators by L. Allen Phelps and Laurie J. Batchelor, 1979

IN 144 Development of Individualized Education Programs (IEPs) for the Handicapped in Vocational Education by Lorella A. McKinney and Donna M. Seay, 1979

SN 24 Working on Working by the Office of Radio and Television for Learning, WGBH Education Foundation, 1979 (attitudes, insights, and practical solutions of vocational educators working with handicapped students)

IN 143 Least Restrictive Alternative for Handicapped Students by Lloyd W. Tindall and John J. Gugerty, 1979

IN 134 Career and Vocational Development of Handicapped Learners: An Annotated Bibliography by Robert D. Bhaerman, 1978

IN 135 The Career and Vocational Development of Handicapped Learners by Donn E. Brolin and Oliver P. Kolstoe, 1978

SN 21 Another Step Forward by the University of Florida, 1978 (set of five documents on successfully integrating mentally and physically handicapped students into classrooms)

BB 43 Vocational Education for Special Needs Populations: An Annotated Bibliography of Articles and Reports compiled by Joel H. Magisos and Kathleen A. Jezierski, 1977

IN 119 Vocational Education for the Handicapped: A Review by Marc E. Hull, 1977

EXAMPLE: The Identification and National Verification of Competencies Important to Secondary and Post-Secondary Administrators of Vocational Education--Final Report: Part I, 101 pp., 1977.

This document explains the research and analysis procedures used to identify and nationally verify the competencies important to local administrators of vocational education. A list of the 166 verified competencies is provided.

## Research Review and Syntheses

The development of a research review and synthesis paper begins with a review of all the literature representing the "state of the art" on a selected topic. Once reviewed, that literature is examined in a new way to identify a pattern, concept, or structure not previously evident. The review and synthesis paper "makes sense" of the literature on a topic, providing new information by synthesizing what exists. Most review and synthesis papers are intended for scholars, researchers, and other specialists, although vocational administrators and teachers may use them for a comprehensive understanding of a topic.

EXAMPLE: Transferability of Vocational Skills: Review of Literature and Research, 51 pp., 1976.

This paper reviews the topic of transferability of occupational skills and describes the process and facilitators of skill transfer.

## Interpretations of Research

Interpretations are analyses of research reports for a nonresearch audience. Such products clarify or explain the meaning of research findings. Typical audiences include decision makers, teachers, and persons without a specialized background in a topic.

EXAMPLE: Views on Community and Junior College Education, 13 pp., 1975.

This publication includes a discussion of historical and future developments in community colleges, the role of the American Association of Community and Junior Colleges, considerations for community colleges in becoming community-based, and the role of community colleges in a changing society.

## Applications of Research

Applications put research findings to practical use in handbooks, guides, curricular materials, audiovisuals, and how-to products for decision makers, administrators, or classroom teachers. The terms development and research and development usually refer to the production of such materials.

EXAMPLE: The Development of Competency-Based Instructional Materials for the Preparation of Local Administrators of Vocational Education--Final Report: Part II, 103 pp., 1977.

This document describes the curriculum development and field-testing procedures used by National Center staff to develop, field test, and revise competency-based vocational education administrator modules. The field-testing guidelines, instruments, and findings are included.

Summaries, Abstracts, Annotations, and Bibliographies

These are summaries that are designed as fact sheets or reference sources for any audience, including both researchers and practitioners. Such information products usually provide only enough information to allow individuals to decide whether additional information or the full text of a document should be consulted. Executive summaries, however, give busy decision makers a quick overview of the central concepts in an important topic or report, without requiring additional reading.

EXAMPLES: The National Center publishes briefs summarizing the important issues covered in review and synthesis papers from the previous year.

Resources in Vocational Education (RIVE), Projects in Progress: A Report for the Coordinating Committee on Research in Vocational Education, and Current Projects in Vocational Education: State-Administered Projects are all examples of summaries, abstracts, or annotations.

## Summary

At this point, you should be well aware that there are many different types of information resources available and many different information sources or agencies from which information about vocational education can be obtained. Depending on your particular need for information, you will have to determine which agencies are most likely to be able to supply the desired information.

To help summarize the agencies most likely to be of help to vocational administrators, sample 13 presents information resources in education organized around the four agencies that are the major suppliers of information to vocational educators. While you should not restrict your search for relevant information to these organizations, you should probably contact one or more of these agencies during most information searches in vocational education. This chart also lists ways in which the information can be obtained and the format of the information supplied by the various agencies.

To help those who would like to approach the search for information by means of the specific type of information needed, sample 14 contains a list of information resources in education organized by the types of information commonly needed.

## SAMPLE 13

# INFORMATION RESOURCES IN EDUCATION

(organized by major information sources)

| WHERE YOU GO (Resource) | IF YOU NEED (Types of Information) | WHAT YOU DO (Access) | WHAT YOU GET (Format of Output) |
|---|---|---|---|
| **ERIC**<br>• your library or resource center<br>• monthly catalogs of abstracted documents (RIE, CIJE)<br>• computer search facility<br>• microfiche collection<br>• clearinghouse user services coordinator | • research facts, findings<br>• management and budgeting tools<br>• project results<br>• educational programs<br>• curriculum<br>• classroom techniques<br>• evaluation tools, reports<br>• papers, presentations<br>• professional development materials | • conduct a manual search of RIE and/or CIJE<br>• conduct a computer-assisted search<br>• contact an ERIC clearinghouse | • abstracts or bibliographic references for a few documents or articles<br>• computer printout, allowing selection of print or microfiche copies of actual documents, ordered from ERIC Document Reproduction Service (EDRS)<br>• print or microfiche copies of documents obtained directly from a search facility or microfiche collection<br>• information analysis and other products supplied by a Clearinghouse<br>• journal articles |
| **R&D EXCHANGE**<br>• one of the source documents available on organizations, consultants, meetings, databases, and clearinghouses<br>• Regional Exchange<br>• state representative (linker) to Regional Exchange<br>• directly to the Resource and Referral Service | • time and location of meetings, conferences<br>• databases and clearinghouses, in addition to ERIC<br>• organizations specializing in a topic area<br>• experts or consultant specialists<br>• school sites with ongoing programs<br>• information on new or unusual topics in education<br>• brief overviews or summaries on popular topics | • obtain the source document and look up organizations, etc.<br>• call your state representative or Regional Exchange<br>• call Resource and Referral Service | • referrals to organizations, networks, meetings, individuals, databases, clearinghouses<br>• mini-lists of resources for assistance in certain areas of education |

| WHERE YOU GO (Resource) | IF YOU NEED (Types of Information) | WHAT YOU DO (Access) | WHAT YOU GET (Format of Output) |
|---|---|---|---|
| **NATIONAL CENTER** | • information on vocational education projects in progress | • call or write Program Information Office (800) 848-4815 (614) 486-3655 or • consult Resources in Vocational Education or • consult Projects in Progress: A Report for the Coordinating Committee on Research in Vocational Education (available in ERIC) or • consult Current Projects in Vocational Education: State-Administered Projects (available in ERIC) | • newsletters, mass mailings, project/program brochures • descriptions of projects in vocational education |
| | • original research reports in vocational education • research review and syntheses • interpretations of research • applications of research • summaries, abstracts, annotations, bibliographies • curriculum | • call or write Publications Office (800) 848-4815 (614) 486-3655 | • print or nonprint materials |
| **NNCCVTE** (National Network for Curriculum Coordination in Vocational and Technical Education) | • curriculum materials in vocational education • inservice training • technical assistance in curriculum development | • contact nearest Curriculum Coordination Center (CCC) or state liaison representative to the NNCCVTE | • curriculum • workshops • technical assistance • training |

SAMPLE 14

## INFORMATION RESOURCES IN EDUCATION

(organized by types of information desired)

| WHAT YOU NEED (Types of Information) | WHERE YOU GO (Resource) |
|---|---|
| • Curriculum materials<br>• Classroom techniques | • ERIC<br>• National Network for Curriculum Coordination in Vocational and Technical Education (NNCCVTE)<br>• National Center for Research in Vocational Education |
| • Professional development tools<br>• Management and budgeting tools<br>• Evaluation tools, reports | • ERIC<br>• National Center for Research in Vocational Education (Products Catalog or Resources in Vocational Education) |
| • Research reports<br>• Project results<br>• Information on projects in progress in vocational education<br>• Review and syntheses of research | • National Center for Research in Vocational Education (Resources in Vocational Education or Program Information Office)<br>• ERIC |
| • Inservice training<br>• Technical assistance in curriculum development | • National Network for Curriculum Coordination in Vocational and Technical Education (NNCCVTE)<br>• National Center for Research in Vocational Education (Program Information Office) |
| • National meetings in educational topic areas<br>• Up-to-date information on new or unusual topics in education<br>• Experts or consultant specialists or organizations providing technical assistance | • Research and Development (R&D) Exchange |

The following "Case Situation" describes a task faced by Ms. Marlow, a special education coordinator, who must organize an inservice program for instructors in her institution. Read the "Case Situation" and, on the basis of the information and samples provided in the previous information sheet, (1) describe how Ms. Marlow should conduct her information search and (2) compile a list of human, organizatior l, and material resources that would be helpful in developing her inservice agenda.

## CASE SITUATION

Ms. Marlow, special education coordinator for a large vocational institution, has been asked by the director of instruction to develop an agenda for one day of an inservice program designed to sensitize instructors to the needs of special students. The director of instruction has asked Ms. Marlow to concentrate on three activities: (1) informing instructors about the needs of handicapped students, (2) providing them with effective instructional techniques for serving handicapped students, and (3) identifying available support services. The director has indicated that Ms. Marlow should locate resources for use during the inservice program. She will also have responsibility for an ongoing resource update to keep instructors informed about materials helpful to them in teaching handicapped students. She has six months in which to develop her agenda, locate resources, and present a plan for the resource update.

# NOTES

Compare your completed written response to the "Case Situation" with the "Model Response" given below. Your response need not exactly duplicate the model response; however, you should have covered the same major points.

## MODEL RESPONSE

Ms. Marlow should first review her own information resources. Has there been a pertinent article in a professional journal lately? Does she have professional contacts that might be helpful--a colleague in a professional organization or someone in her state department, perhaps? Does anyone in her own institution have experience she could profit from?

After reviewing her own resources, Ms. Marlow should then contact her institution's librarian for assistance. The information search they develop should include most if not all of the following:

- A computer-assisted search of ERIC and the Council for Exceptional Children (CEC) database and/or a call to an ERIC clearinghouse
- An information request directed to the regional Curriculum Coordination Center of the National Network for Curriculum Coordination in Vocational and Technical Education (NNCCVTE)
- An information request directed to the Resource and Referral Service (RRS)
- An inquiry to appropriate other clearinghouses or resource organizations
- Consideration of the National Center's publications in this area

The information-seeking activities should begin with a computer-assisted search of ERIC and CEC using descriptors for special populations and inservice education. Before conducting their own search, Ms. Marlow and the librarian might wish to call the user services coordinator at the ERIC Clearinghouse on Handicapped and Gifted Children and request both a search and a selected list of ERIC information analysis products on the topic. The ERIC search would provide Ms. Marlow with abstracts of documents and journal articles concerning guidance and counseling of handicapped students, educational resources, and inservice programs. Such material would be particularly useful in identifying reports on successful programs for handicapped students. The ERIC Clearinghouse on Adult, Career, and Vocational Education would also be an appropriate resource organization.

For curriculum materials, instructional resources, handbooks, and guides useful to instructional staff, Ms. Marlow could turn to other resources. Her nearest Curriculum Coordination Center should be able to provide curriculum materials for use with handicapped students in vocational settings. She might

wish to contact the Council for Exceptional Children and order their publications catalog as well. The Clearinghouse on the Handicapped represents another possible resource for curriculum materials.

Several resource organizations should be able to identify consultants with expertise in the special needs area. The Resource and Referral Service, for example, could refer Ms. Marlow to helpful contacts in planning her inservice agenda. The RRS mini-lists on developing individualized education programs (IEPs) for handicapped students and helping the handicapped gain access to programs would be handy reference materials on agencies concerned with the education of handicapped individuals. The National Association of State Directors of Special Education, the American Vocational Association, and the National Vocational Guidance Association might also provide assistance in locating resource persons and materials for the inservice program.

The National Center publications from sample 12 are all targeted to Ms. Marlow's needs. These selections are practitioner-oriented handbooks and guides that should be useful both for the inservice program and for inclusion in the resource update.

Level of Performance: Your response should have included most of the same resource organizations and materials identified in the "Model Response." If you missed some of the key resources listed or have questions about any of the resources, review the material in the information sheet, "Information Resources for Vocational Education," pp. 25-50, or check with your resource person if necessary.

The following "Case Study" gives a newspaper account of an educational decision maker involved in researching program alternatives for gifted children. Review the situation described and then (1) indicate whether the decision maker has conducted a thorough information search and (2) outline the sources and methods of information retrieval the decision maker could have used in formulating his alternatives.

## CASE STUDY

The following is from an actual newspaper account of an educational decision maker at work.

SCHOOL CHIEF PRESENTS ALTERNATIVES FOR GIFTED CHILDREN
Columbus Citizen-Journal
July 26, 1980
p. 10, cols. 1-4)

The assistant superintendent for curriculum for the Lancaster Board of Education has spent a year investigating programs for gifted children and presented the board with some alternatives this week.

The school superintendent said it is impossible to estimate accurately how many students in the district would qualify for special education programs for the gifted, but he thought it might be in the neighborhood of 100 to 200.

The assistant superintendent for curriculum described different means of funding the program, including some funds available from the state, kinds of programs that could be established, how to identify gifted students, cost options.

He said the type of program chosen would determine if additional staff would be required.

One alternative could be housing gifted students in a separate facility with their own faculty--the most expensive of the options.

A second alternative would be a program in which the gifted would stay in their regular schools but be pulled out for special class offerings. The third would be to retain them in their regular classroom but give them different tests and special challenges.

The assistant superintendent said the third alternative is the least recommended but would be the cheapest to implement.

The board took no action, but it will continue to study the options.

# NOTES

Compare your critique of the "Case Study" with the "Model Critique" given below. Your response need not exactly duplicate the model response; however, you should have covered the same major points.

## MODEL CRITIQUE

Information Sources the Decision Maker Could Have Used

Local sources. The assistant superintendent might very well have begun his information search using his own resources. He should have been aware of various print or nonprint materials or resource persons that could furnish some of the information he needed. Programs for the gifted are not uncommon today; he might at least have found some leads to follow in his search for relevant information.

Information systems and networks. The assistant superintendent could also have conducted a search of the Educational Resources Information Center (ERIC) and Exceptional Child Education Resources (from CEC). If he had chosen to conduct a manual search of ERIC, he would have consulted the monthly and semiannual indexes of Resources in Education (RIE) and the cumulative index of Current Index to Journals in Education, using such terms as gifted or academically gifted. In light of the fact that he had one year in which to study the problem, a manual search would not have been the best means of accessing ERIC.

Rather, he could have called a school system librarian or his nearest ERIC search service and requested a computer-assisted search on the topic. The topics to be included in the search are included in the article: funding sources, program alternatives, means of identifying gifted students, and cost options. A search analyst would have determined what information was required and how it would be used. The search strategy would have been developed on that basis.

A good alternative to a truly comprehensive search would have been a call to the ERIC Clearinghouse on Handicapped and Gifted Children. The user services coordinator at the clearinghouse would be knowledgeable about programs for gifted students and would be the most appropriate person to conduct a comprehensive search. At the same time, the user services coordinator could recommend ERIC information analysis products, including review and synthesis papers, bibliographies, or summaries developed by the clearinghouse on the subject of gifted children.

Resource organizations. Next to the clearinghouse itself, the Council for Exceptional Children is an excellent resource organization to contact for materials on gifted children. The publications catalog from the Council would have been an excellent resource for the assistant superintendent's study.

Another option would have been to contact the Resource and Referral Service (RRS) at the National Center for Research in Vocational Education. The RRS mini-list on innovative programs for gifted and talented students could have provided the assistant superintendent with the addresses of key programs to serve as models for his own program recommendations.

Information products. The types of information products most useful to the assistant superintendent would be final reports of projects dealing with gifted students, research review and synthesis papers covering the most important literature on the topic, annotated bibliographies, summaries, and overviews of the issues. Once again, ERIC information analysis products from the Clearinghouse on Handicapped and Gifted Children would have been appropriate resources.

Thoroughness of the Decision Maker's Search

The article suggests that the assistant superintendent covered the major areas of concern in developing program alternatives for the local school board. Other topics he could have considered include available curricula, required staff training, testing programs and procedures, available school sites, transportation concerns, and potential community resources. Unfortunately, we cannot determine the extent of the actual information search from the brief newspaper article. The article does illustrate the necessity of factual information in developing program options of this type.

Level of Performance: Your response should have covered the same major points as the "Model Critique." If you missed some points or have questions about any additional points you made, review the material in the information sheet, "Information Resources for Vocational Education," pp. 25-50, or check with your resource person if necessary.

## Learning Experience III

### FINAL EXPERIENCE

While working in an actual administrative situation, use information resources to help improve vocational education programs.*

As the need arises, use information resources to help improve vocational education programs. This will include--

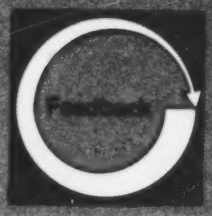
- applying the steps involved in problem solving
- determining the points at which you will need information
- locating the sources of information useful to you, whether ERIC, RRS, or another information source such as the National Center
- applying the guidelines for decision making once alternative solutions are identified through the resources

NOTE: As you complete each of the above activities, document your activities (in writing, on tape, through a log) for assessment purposes.

continued

*If you are not currently working in an actual administrative situation, this learning experience may be deferred, with the approval of your resource person, until you have access to an actual administrative situation.

FINAL EXPERIENCE continued




Arrange to have your resource person review your documentation.

Your total competency will be assessed by your resource person, using the "Administrator Performance Assessment Form," pp. 61-63.

Based upon the criteria specified in this assessment instrument, your resource person will determine whether you are competent in using information resources to help improve vocational education programs.

Name _____

Date _____

## ADMINISTRATOR PERFORMANCE ASSESSMENT FORM

Use Information Resources to Help Improve Vocational Education Programs

Directions: Indicate the level of the administrator's accomplishment by placing an X in the appropriate box under the LEVEL OF PERFORMANCE heading. If, because of special circumstances, a performance component was not applicable, or impossible to execute, place an X in the N/A box.

| | LEVEL OF PERFORMANCE | | | | | |
|---|---|---|---|---|---|---|
| | N/A | None | Poor | Fair | Good | Excellent |
| In using resources to help improve vocational education programs, the administrator: | | | | | | |
| 1. applied the steps in problem solving, including: | | | | | | |
| a. sensing a need, problem, or difficulty to overcome..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| b. diagnosing and stating the problem..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| c. searching and retrieving information on the problem..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| d. applying decision-making guidelines..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 2. sought information for one or more of the following purposes: | | | | | | |
| a. diagnosing the problem or needs and identifying the constraints..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| b. becoming aware of facts surrounding the problem, research completed on it, expert opinion about it, and the range of alternative solutions..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

| | LEVEL OF PERFORMANCE | | | | | |
|---|---|---|---|---|---|---|
| | N/A | None | Poor | Fair | Good | Excellent |
| c. evaluating before and after action is taken. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| d. installing a course of action, an idea, product, or a service..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 3. used the ERIC system in locating information, including: | | | | | | |
| a. locating ERIC microfiche collections and search facilities..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| b. locating and contacting ERIC Clearinghouses on the topic of concern..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| c. locating documents in RIE and CIJE, using a manual or computer-assisted search..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| d. selecting documents and articles appropriate to the information need..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| e. ordering documents..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 4. used the Research and Development Exchange in one or more of the following ways: | | | | | | |
| a. consulting Databases and Clearinghouses..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| b. consulting the Meetings Exchange..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| c. consulting Human Resource Directories and Files in Education..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| d. consulting Private Organizations and Associations..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| e. consulting Dissemination Networks..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| f. contacting the state department representative or Regional Exchange for specific information requests..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| g. contacting the Resource and Referral Service for mini-lists or specific information requests..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

| | LEVEL OF PERFORMANCE | | | | | |
|---|---|---|---|---|---|---|
| | N/A | None | Poor | Fair | Good | Excellent |
| 5. consulted other information resources, including: | | | | | | |
| a. the National Center's products and services. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| b. the National Network for Curriculum Coordination in Vocational and Technical Education..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| c. Resources in Vocational Education (RIVE) for appropriate education documents and articles..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| d. Projects in Progress or Current Projects in Vocational Education for funded research projects..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 6. located and used one or more of the following information products, including: | | | | | | |
| a. original research reports..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| b. review and syntheses..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| c. interpretations of research..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| d. applications of research..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| e. summaries, abstracts, annotations, and bibliographies..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

Level of Performance: All items must receive N/A, GOOD, or EXCELLENT responses. If any item receives a NONE, POOR, or FAIR response, the administrator and resource person should meet to determine what additional activities the administrator needs to complete in order to reach competency in the weak area(s).

# NOTES

# Additional Recommended References


Havelock, Ronald G. *Planning for Innovation Through Dissemination and Utilization of Knowledge*. Ann Arbor, MI: The University of Michigan, Institute for Social Research, 1969.

National Institute of Education. "ERIC-It's That Easy." Washington, DC: National Archives Trust Fund Board, National Audio Visual Center, 1978. (15-minute color videocassette)

National Institute of Education. "ERIC: What the Clearinghouses Do." Washington, DC: National Archives Trust Fund Board, National Audio Visual Center, 1980. (20-minute color videocassette)

National Institute of Education. "ERIC: Knowing More About Searching." Washington, DC: National Archives Trust Fund Board, National Audio Visual Center, 1980. (20-minute color videocassette)

National Institute of Education. "ERIC: Finding Information the Right Way." Washington, DC: National Archives Trust Fund Board, National Audio Visual Center, 1980. (30-minute color videocassette)

Phipps, Lloyd J. *Handbook on Agricultural Education in Public Schools*. Fourth Edition. Danville, IL: The Interstate Printers and Publishers, 1980.

Polya, Gyorgy. *How to Solve It*. Princeton, NJ: Princeton University Press, 1971.

riner, James D., ed. *Problem-Solving: A Practical Guide to Attaining Goals*. Lansing, MI: Michigan Department of Education, Office of Career Education, 1979. ED 181 556

# Competency-Based Administrator Education Materials

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- Guide to Using Competency-Based Vocational Education Administrator Materials
- Resource Person's Guide to Implementing Competency-Based Administrator Education Concepts and Materials
- An Introduction to Competency-Based Administrator Education (slide/audiotape)

For information regarding availability and prices of these materials contact—AAVIM, American Association for Vocational Instructional Materials, 120 Driftmier Engineering Center, University of Georgia, Athens, Georgia 30602, (404) 542-2586.



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